Today there are more composting options than:

- Backyard Compost Bin
- Manure on Farms
Why Composting?
• If 25 people diverted their food waste to composting for one year, it would equal eliminating the emissions from a 6000 mile train trip.

• If 80% of the food waste generated in Pennsylvania were to be composted it would equal the reduction of GHG emissions equivalent to the carbon sequestered by 26 million tree seedlings grown for 10 years.

• If only 10% of the population in the United States were to divert food scraps and yard debris away from landfills to composting, it would reduce emissions equivalent to removing all the vehicles from the roads of Los Angeles and San Diego.
Benefits Associated with Compost End-Uses

• Direct Environmental Benefits to Soil
  – **Improves the Physical Properties of Soils.** Compost increases water holding, soil aeration, structural stability, resistance to water and wind erosion, root penetration, and soil temperature stabilization, thereby preventing turf losses on roadsides, hillsides, playing fields, and golf courses.
  – **Enhances the Chemical Properties of Soils.** Compost increases macro- and micronutrient content, increases availability of beneficial minerals, ensures pH stability, and provides a long-term source of nutrient input by acting as a nutrient reservoir, and reduces fertilizer requirements by at least 50%.
  – **Improves the Biological Properties of Soils.** Compost promotes the activity of beneficial micro-organisms, suppresses certain plant diseases, promotes faster root development, promotes higher yields of agricultural crops, and bonds heavy metals, preventing migration to water resources absorbed by plants.
Food is the number one cause of methane gas in landfills. Methane gas is 21 times stronger than carbon dioxide impacting the earth’s atmosphere.

Composting is an aerobic process that does not produce methane.
BUSINESS PLAN

- Do you view your composting enterprise as a waste management tool or as a manufacturing enterprise?

- Most older composting companies’ stories are not easy reading.
Pennsylvania’s Regulations

• There are no landfill bans in place for any organic materials within the state, (though there is some “environmentally savvy” language in Act 101) nor are there any local ordinances regulating the flow of organic waste materials away from landfills.

• Every client in Pennsylvania diverts voluntarily.

• PA subsidizes both public and non-profit sectors to advance composting but not the private sector. This is a unique position among the U.S. states.

• _PA retains a strong landfill mentality as it is the western world’s largest importer of trash – averaging 9 million tons annually._
Feedstock and Permitting Progression

1991-1996

- Yard debris
- Clean wood waste
Feedstock and Permitting Progression

1996-1998

• Yard debris
• Clean wood waste
• Manures (and bedding)
• Paper
Feedstock and Permitting Progression

1998–2006

• Yard debris
• Clean wood waste
• Manures (and bedding)
• Paper
• Preconsumer vegetative food residuals
Feedstock and Permitting Progression

2006-today

- Yard debris
- Clean wood waste
- Manures (and bedding)
  - Paper
  - All food residuals
  - Non-biosolid liquids
- Green building materials
- Corrugated/Wax corrugated
AgRecycle was founded in 1991 and operates multiple composting sites in western Pennsylvania.

Pennsylvania’s Composting General Permit allows us to accept source-separated:

- Yard Debris
- Clean Wood Waste
- Manures (and bedding)
- Paper
- All food residuals (including proteins and bones)
- Non-biosolid liquids
- Green building materials
- Compostable products
- Corrugated/wax corrugated
Why Understanding The Economics of Composting Is Essential

• Approximately 87% of all composting operations in the U.S., that do not receive government subsidies fail after 5 years.

  EPA 2012

It is my belief that this attrition rate is because even experienced and successful people misunderstand the uniqueness associated with creating high end finished composts.

Grinding leaves and other organics and letting them sit in a pile to decompose is NOT manufacturing compost.
FOOD

SCRAPS
Generator Percentages of food scraps based on a nine State Average

*Volume was determined from what the stores considered to be waste. Percentage does not include what was donated to food banks and other community organizations.
School and Corporate Cafeterias

.75 to 1 pound of food waste per person, per meal

EPA
• Average American Family throws away 49 pounds of food, per person, per year, so the family of four throws away 196 pounds of food per year.

• National Resource Defense Council identified that each household in the U.S. throws away annually between $1400-$2700 in uneaten groceries they have purchased regardless of income level.

• The average American adult now spends 44% of their annual food budget on foods consumed away from their home.
In fast food restaurants:

• Per $1000 of food sold, 200 pounds of waste is generated
• 32% is food waste
• 92% of that food waste is post-consumer
The commonly accepted waste statistic for restaurants serving dinner or lunch and dinner with table service:

- Approximately 2 lbs. of trash per meal served
Food waste comprises approximately 51% of a restaurant’s waste stream.
The Green Restaurant Association released the following statistics in 2011:

- 3.2 Million tons of waste from quick & takeout food packaging was generated including:
  - 39 billion pieces of cutlery
  - 29 billion plates
  - 113 billion cups

  – Less than 1% of that was recycled or composted
Commercial Kitchen

Compostable materials in commercial kitchens include much more than just food scraps.
Pittsburgh Convention Center

“ALL OR NOTHING RULE!”

Pre determination prior to acceptance.
COMPOSTABLE RESIDUALS:
Baked goods and baker’s ingredients
Bones
Bread
Butcher’s twine
Butter
Cardboard with or without wax coating (clear plastic shipping enclosure envelopes must be removed)
Cheese when removed from plastic wrapping
Coffee grounds and coffee filter paper
Dairy
Eggs and paper egg cartons
Fish/Seafood (no clam or oyster shells)
Flowers
Fruits
Grains and pasta
Lard
Lipton tea and packaging
Lobster and shrimp including shells
Meat
Menus
Paper beverage cartons WITHOUT plastic rings/caps
Paper napkins
Paper-untreated
Poultry
Solid fats – chicken, beef, and pork
Sugar and sweetener packets
Vegetables
Wax paper
Wood that is untreated or burnt

NOT ACCEPTABLE FOR COMPOSTING:
Cheese cloth
Cleansers
Dust and dirt sweepings
Foam coated cups or paper
Foil
Glass
Lining pads with produce or protein packaging (fresh berry liners)
Metal
Novus tea bags
Oil or grease unless they are incidental with food waste
Oyster or clam shells
Parchment paper
Paper that has been used with cleaning agents
Plastic – film wrap or solids
Produce labeling tags that are directly on produce
Rags and cloth
Rubber bands
Rubber gloves
Soap
Soil
Steel wool
Styrofoam
Twist ties
Wood that is treated, coated, or has plastic packaging affixed to it
Eggs and paper egg cartons
Fish/Seafood (no clam or oyster shells)
Flowers
Fruits
Grains and pasta
Lard
Lipton tea and packaging
Lobster and shrimp including shells
Meat
Menus
Paper beverage cartons WITHOUT plastic rings/caps
Paper napkins
Paper towels

Dust and dirt sweepings
Foam coated cups or paper
Foil
Glass
Lining pads with produce or protein packaging (fresh berry liners)
Metal
Novus tea bags
Oil or grease unless they are incidental with food waste
Oyster or clam shells
Parchment paper
Paper that has been used with cleaning agents
Importance of Carbon

• Food wastes cannot be composted alone.
• Carbon to nitrogen ratios need to be in the range of 30/1.
• To make the process of food waste composting cost effective, facilities accepting food need to have access to easy and readily available sources of carbon: LEAVES AND YARD DEBRIS.
PRE AND POST-CONSUMER FOOD ACCEPTANCE

We have been accepting food scraps since 1998 and began our own collection routes in 2006.

AgRecycle’s food scrap customers are from these commercial sectors:

- Serving
  - Food processors
  - Supermarkets
  - Restaurants
  - Universities/Schools
  - Professional sports stadiums
  - Pittsburgh Convention Center
  - Corporate cafeterias
  - Public venues
  - Special events
  - Museums
Commercially generated food scraps weigh approximately 480 to 1,300 lbs. per cubic yard depending on the treatment of the scraps and if other organic materials have been included.
FOOD COLLECTION CONTAINERS
EVENTS
2008
MLB, in conjunction with Natural Resource Defense Council announced their TEAM GREENING COMMITMENT to Environmental Stewardship and to the greening of MLB Stadiums.
2009
The Pittsburgh Pirates announced their: LET’S GO BUCS. LET’S GO GREEN.

AgRecycle began providing composting services to the Pirates one week prior to opening day that year.

Last month marked the beginning of our 6th year servicing the Pirate organization.
2013 NATIONAL LEAGUE MVP

Andrew McCutchen
At PNC Park /Pirates Stadium
Compostable are collected from:

• All Restaurants
• All Private Clubs
• Luxury Level Services
• Suites and Private Boxes
• Snack Stands
• EVERY ROW OF SEATS
In 2013, the Pittsburgh Pirates increased their diversion rate to composting by 59% over 2012.
Of the 30 MLB ballparks, PNC Park is 27th smallest in seating capacity. Yet, the Pirates organization diverted the third highest amount to composting from the 2013 season.
Bob Nutting, Pirates Chairman of the Board said “The measures that are continually being put into place at PNC Park have an immediate and long term positive impact. These initiatives not only make sense for the environment, but they also make good business sense as well”.
• Using windrow technology Monitoring, Turning and Screening- we are required to maintain temperatures above 131F for a minimum of 15 days after constructing a windrow. This insures pathogens are killed.
Sales Markets

- Landscape businesses
- Professional growers
- Golf courses
- Garden centers
- Lawn care companies
- Universities and schools
- Developers
- Florists

- Public entities
- Sod producers
- Landscape architects
- Agriculture
- Brownfields
- Abandoned mines
- Rooftop gardens/ green roofs
- Silviculture
2010 Gallop Survey Results on Retail Buying of Lawn and Garden Products*

- Estimated number of American households was 102.8 million.
- 70.5 million households purchased some form of lawn or garden product.
- Soil amendments and mulch were purchased by 36 million households.
- Fertilizers (includes organic and nonorganic) were purchased by 28 million households.

* In 1997, for the first time, gardening surpassed golf as the hobby of which Americans spend the most money and it has seen an average growth rate of 4% per year from 1997-2010.
* Buyers are now 54% male in what was previously a female majority market.

* Landscapers and lawn services are not included in these numbers.
SOIL REMEDIATION PROJECT
SO, YOU want to compost food scraps? THEN, you want to GROW the volume, while maintaining QUALITY and make it all work economically...

Sharon Barnes

Carla Castagnero

Barnes
Since 1950

AGRECYCLE
FROM FORGOTTEN + FERTILE
THE ROAD AHEAD

- Equipment Costs $$$$
- Air Quality Issues
- Landfill Competition
- Demand for Infrastructure
- Siting Challenges
- Surface/Storm Water Issues
- Competition for Carbon
- Transportation Challenges
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